

REMARKS

Claims 1-31, 52, and 54-59 are pending in the application with claims 1, 3, 20, 21, 24, 26-31, 52, 54, and 55 amended herein. Applicants express appreciation for the allowance of claims 56-59 and for the indication that claims 10-12 and 28 set forth allowable subject matter.

Claims 1, 2, 6, 7, 19-21, 25, 52, and 54 stand rejected under 35 U.S.C. §102(e) as being anticipated by Bai. Applicants request reconsideration. Claim 53 was previously cancelled.

Amended claim 1 sets forth a method of forming a dielectric layer that includes, among other features, forming a second metal-containing dielectric layer "on and in contact with" a first metal-containing dielectric layer. Page 2 of the Office Action alleges that Bai discloses all of the limitations of claim 1. Pages 10-11 of the Office Action take the position that the terms "on" and "over" should "be interpreted in the same way" since neither requires direct contact. As amended, claim 1 now sets forth that the second metal-containing dielectric layer is on and in contact with the first metal-containing dielectric layer.

Applicants incorporate herein by reference previous remarks made in the Response to July 26, 2002 Office Action regarding the subject matter of claim 1 in comparison to the teachings of Bai. In keeping with Applicants' prior assertions and the claim 1 amendment herein, Bai clearly does not disclose or suggest the claimed second metal-containing dielectric layer "on and in contact with" the claimed first metal-containing dielectric layer. Accordingly, Bai does not anticipate claim 1. Claims 2, 6, 7, and 19 depend from claim 1

and are not anticipated at least for such reason as well as for the additional limitations of such claims not disclosed.

Amended claim 20 sets forth a method for forming a MOS transistor that includes, among other features, forming a lanthanum-containing dielectric layer on and in contact with a hafnium-containing dielectric layer. As may be appreciated from the discussion above regarding the deficiencies of Bai with respect to claim 1, Bai does not anticipate claim 20. Claims 21 and 25 depend from claim 20 and are not anticipated at least for such reason as well as for the additional limitations of such claims not disclosed.

Amended claim 52 sets forth a method of forming a dielectric layer that includes, among other features, forming a second metal-containing dielectric layer on and in contact with a first metal-containing dielectric layer. Applicants herein incorporate by reference the previous remarks made in the Response to July 26, 2002 Office Action regarding the deficiencies of Bai as applied to claim 52. In addition, Applicants assert that Bai does not disclose or suggest the second metal-containing dielectric layer of claim 52 on and in contact with the first metal-containing dielectric layer of claim 52. At least for such reason, Bai does not anticipate claim 52.

Claim 54 sets forth a method for forming a MOS transistor that includes, among other features, forming a dielectric layer consisting of lanthanum oxide on and in contact with a hafnium oxide dielectric layer. At least for the reasons described herein regarding the deficiencies of Bai as applied to claims 1 and 52, Bai does not anticipate claim 54.

Applicants assert that Bai does not anticipate claims 1, 2, 6, 7, 19-21, 25, 52, and 54 at least for the reasons set forth herein and request allowance of such claims in the Office Action.

Claims 1 and 6-8 stand rejected under 35 U.S.C. §102(e) as being anticipated by Bojarczuk. Applicants request reconsideration.

Amended claim 1 sets forth a method of forming a dielectric layer that includes, among other features, forming a first metal-containing dielectric layer over a silicon-containing surface of a substrate and forming a second metal-containing dielectric layer on and in contact with the first metal-containing dielectric layer. All the metal of the first dielectric layer consists of at least one element selected from Group IVB. All the metal of the second dielectric layer consists of at least one element selected from Group IIIB. Page 4 of the Office Action alleges that paragraph [0046] of Bojarczuk discloses the claimed first metal-containing dielectric layer.

However, paragraph [0046], lines 4-7 of Bojarczuk state that "the present invention is not limited to Y-based oxide for the formation of the metal-oxide layer 111, but includes an alloy containing Y mixed with another metal." (Emphasis added.) That is, metal-oxide layer 111 is required to contain Y. Applicants note that Y appears in Group IIIB of the periodic table. Accordingly, Bojarczuk does not disclose any compositions for metal-oxide layer 111 where all the metal consists of at least one element selected from Group IVB. Instead, Bojarczuk requires Y in all possible compositions listed for metal-oxide layer 111. As such, the Bojarczuk possible compositions do not disclose every limitation of claim 1 and thus, do not anticipate claim 1. Claims 6-8 depend from claim 1 and are not

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anticipated at least for such reason. Applicants request allowance of claims 1 and 6-8 in the next Office Action.

Claims 3-5 and 23 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Bai in view of Kaushik. Applicants request reconsideration. Claims 3-5 depend from claim 1 and claim 23 depends from claim 20. The subject matter of claims 1 and 20 is discussed above. Applicants assert that Kaushik does not disclose or suggest and the Office Action does not allege that Kaushik discloses or suggests the subject matter of amended claims 1 and 20 discussed herein as missing from Bai. Since both references are deficient in the same respect, combination cannot be considered to suggest limitations absent from both. At least for such reason, claims 3-5 and 23 are patentable over Bai in view of Kaushik. Applicants request allowance of claims 3-5 and 23 as patentable over Bai in view of Kaushik in the next Office Action.

Claims 8, 9, 16, 17, 24, 26, and 55 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Bai in view of Zhang. Applicants request reconsideration.

Claims 8, 9, 16, and 17 depend from claim 1 and claims 24 and 26 depend from claim 20. The subject matter of amended claims 1 and 20 is described above. Applicants assert that Zhang does not disclose or suggest and the Office Action does not allege that Zhang discloses or suggest the subject matter of amended claims 1 and 20 discussed herein as missing from Bai. Since both references are deficient in the same respect, combination cannot be considered to suggest limitations absent from both. At least for such reason, claims 8, 9, 16, 17, 24, and 26 are patentable over Bai in view of Zhang.

Amended claim 55 sets forth a method for forming a MOS transistor that includes, among other features, forming a lanthanum-containing dielectric layer on and in contact with a hafnium-containing dielectric layer. At least for the reasons discussed herein regarding the deficiencies of Bai as applied to claims 1 and 20, Bai further does not disclose or suggest the lanthanum-containing dielectric layer of claim 55 on and in contact with the hafnium-containing dielectric layer of claim 55. Zhang also does not disclose or suggest such limitation and is not alleged by the Office to do so. At least for such reason, claim 55 is patentable over Bai in view of Zhang.

In keeping with the assertions herein, Applicants request allowance of claims 8, 9, 16, 17, 24, 26, and 55 in the next Office Action.

Claims 13-15, 18, and 29-31 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Bai and Zhang and in further view of Kaushik. Applicants request reconsideration. Claims 13-15 and 18 depend from claim 1 and claims 29-31 depend from claim 20. The deficiencies of Bai in view of Zhang with regard to claims 1 and 20 are discussed above. Kaushik does not disclose or suggest and is not alleged to disclose or suggest the subject matter absent from Bai and Zhang. Accordingly, combination of the references cannot be considered to suggest subject matter that is absent from all such references. At least for such reason, claims 13-15, 18, and 29-31 are patentable over Bai and Zhang and in further view of Kaushik and Applicants request allowance of such claims in the next Office Action.

Claims 1-31, 52, and 54-59 are established herein as patentable over all cited references considered alone or in combination. Applicants request allowance of all such pending claims in the next Office Action.

Respectfully submitted,

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